

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549**

FORM 11-K

☒ ANNUAL REPORT PURSUANT TO SECTION 15(d) OF THE SECURITIES
EXCHANGE ACT OF 1934

For the fiscal year ended **December 31, 2010**

or

☐ TRANSITION REPORT PURSUANT TO SECTION 15(d) OF THE SECURITIES
EXCHANGE ACT OF 1934

For the transition period from _____ to _____

Commission File Number: 1-9894

A. Full title of the plan and address of the plan, if different from that of the issuer named below:

ALLIANT ENERGY CORPORATION 401(k) SAVINGS PLAN

B. Name of issuer of the securities held pursuant to the plan and the address of its principal
executive office:

ALLIANT ENERGY CORPORATION
4902 North Biltmore Lane
Madison, Wisconsin 53718

REQUIRED INFORMATION

The following financial statements and schedules of the Alliant Energy Corporation 401(k) Savings Plan, prepared in accordance with the financial reporting requirements of the Employee Retirement Income Security Act of 1974, as amended, are filed herewith.

ALLIANT ENERGY CORPORATION
401(k) SAVINGS PLAN
FINANCIAL STATEMENTS AS OF DECEMBER 31, 2010 AND 2009
AND FOR THE YEAR ENDED DECEMBER 31, 2010,
SUPPLEMENTAL SCHEDULES AS OF AND FOR THE YEAR ENDED DECEMBER 31, 2010, AND
REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

ALLIANT ENERGY CORPORATION

401(k) SAVINGS PLAN

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Report of Independent Registered Public Accounting Firm

To the Total Compensation Committee and Participants of the Alliant Energy Corporation 401(k) Savings Plan
Madison, Wisconsin

We have audited the accompanying statements of net assets available for benefits of Alliant Energy Corporation 401(k) Savings Plan (the "Plan") as of December 31, 2010 and 2009, and the related statement of changes in net assets available for benefits for the year ended December 31, 2010. These financial statements are the responsibility of the Plan's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. The Plan is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. Our audits included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Plan's internal control over financial reporting. Accordingly, we express no such opinion. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, such financial statements present fairly, in all material respects, the net assets available for benefits of the Plan as of December 31, 2010 and 2009, and the changes in net assets available for benefits for the year ended December 31, 2010 in conformity with accounting principles generally accepted in the United States of America.

Our audits were conducted for the purpose of forming an opinion on the basic financial statements taken as a whole. The supplemental schedules of (1) assets (held at end of year) as of December 31, 2010, and (2) assets (acquired and disposed of within year) for the year ended December 31, 2010, and (3) reportable transactions for the year ended December 31, 2010, are presented for the purpose of additional analysis and are not a required part of the basic financial statements, but are supplementary information required by the Department of Labor's Rules and Regulations for Reporting and Disclosure under the Employee Retirement Income Security Act of 1974. These schedules are the responsibility of the Plan's management. Such schedules have been subjected to the auditing procedures applied in our audit of the basic 2010 financial statements and, in our opinion, are fairly stated in all material respects when considered in relation to the basic financial statements taken as a whole.

/s/ Deloitte & Touche LLP

Milwaukee, Wisconsin
June 22, 2011

ALLIANT ENERGY CORPORATION

401(k) SAVINGS PLAN

STATEMENTS OF NET ASSETS AVAILABLE FOR BENEFITS

	December 31,	
	2010	2009
Investments (Refer to Notes 7, 8 and 9)	\$653,832,410	\$572,303,167
Notes receivable from participants	10,815,316	9,583,720
Net assets available for benefits at fair value	664,647,726	581,886,887
Adjustments from fair value to contract value for fully benefit-responsive investment contracts (Refer to Note 2)	913,543	3,604,537
Net assets available for benefits	\$665,561,269	\$585,491,424

The accompanying Notes to Financial Statements are an integral part of these statements.

ALLIANT ENERGY CORPORATION

401(k) SAVINGS PLAN

STATEMENT OF CHANGES IN NET ASSETS AVAILABLE FOR BENEFITS

For the Year Ended December 31, 2010

Net assets available for benefits - beginning of year	\$585,491,424
Contributions:	
Cash contributions from employees	27,302,549
Employer contributions:	
Cash	16,991,246
Cash for purchase of Alliant Energy Corporation common stock	1,031,251
Rollovers from other qualified plans	426,628
Investment income:	
Net appreciation in fair value of investments (Refer to Note 7)	63,348,757
Interest and dividends	12,673,875
	<u>76,022,632</u>
Interest income on notes receivable from participants	561,543
Distributions to participants	<u>(42,266,004)</u>
Net increase	<u>80,069,845</u>
Net assets available for benefits - end of year	<u><u>\$665,561,269</u></u>

The accompanying Notes to Financial Statements are an integral part of this statement.

ALLIANT ENERGY CORPORATION
401(k) SAVINGS PLAN

NOTES TO FINANCIAL STATEMENTS
FOR THE YEAR ENDED DECEMBER 31, 2010

Note 1. Description of the Plan

The Alliant Energy Corporation 401(k) Savings Plan (the Plan) is a qualified defined contribution plan under Section 401(k) of the Internal Revenue Code (the Code), as amended, and meets the applicable requirements of the Employee Retirement Income Security Act of 1974, as amended (ERISA). The following brief description of the Plan is provided for general information purposes only. More complete information regarding the Plan is provided in the plan document and summary plan description, which have been made available to all eligible Plan participants (participants). The Plan is administered by the Total Compensation Committee (the Committee) and the Plan sponsor is Alliant Energy Corporate Services, Inc. (a direct subsidiary of Alliant Energy Corporation). The Committee reserves the right to terminate, amend or modify the Plan if future conditions warrant such action.

Any regular employee of Alliant Energy Corporation and its participating subsidiaries (the Company) age 18 and over may participate in the Plan. Regular full-time employees and regular part-time employees customarily scheduled to work at least half-time may participate immediately following 30 days of service. Part-time employees customarily scheduled to work less than half-time may participate after 12 months of service during which he or she has earned at least 1,000 paid hours.

An Employee Stock Ownership Plan (ESOP) is in place within the Plan. Under these provisions, participants have the option to elect to receive cash for any dividends paid on Company common stock within the Plan or to have the dividends reinvested in additional shares based on the current market price.

The Company provides matching contributions of \$0.50 for each \$1 contributed by the participant up to the first 8% of each respective participant's eligible compensation. In addition, the Company provides a contribution into each active employee's 401(k) account each pay period based on a percentage of their base pay (non-elective Company cash contribution) as follows:

<u>Age plus Years of Service</u>	<u>Company Contribution</u>
≤ 49	4%
50 – 69	5%
70+	6%

There are certain exceptions to the Company matching contributions and non-elective Company cash contributions described above for bargaining unit employees. These exceptions are dependent on the bargaining unit in which the employee participates and the employee's date of hire. These exceptions include certain employees being ineligible for the non-elective Company cash contribution and the Company matching contribution being limited to \$0.50 for each \$1 contributed by the participant up to the first 6% of each respective participant's eligible compensation. In addition, certain bargaining unit employees are eligible for an additional Company contribution of 1% of their respective eligible compensation (1% Company contribution). Dependent on the bargaining unit which the employee participates, the 1% Company contribution will be invested in the Alliant Energy Corporation Common Stock Fund or according to the participant's discretion as a cash contribution. Participants must have at least three years of service before they can diversify investments from this 1% Company contribution to different investment funds.

Employee contribution limits for 2010 were as follows:

Eligible employee annual contribution limit as a percentage of compensation	50%
Maximum annual contribution limit*	\$16,500

*Participants who were at least age 50 by Dec. 31, 2010 were eligible to make additional catch-up contributions of up to \$5,500 in 2010. These additional catch-up contributions were not eligible for any Company match.

Company matching contributions and the non-elective Company cash contributions are invested at each participant's discretion. Participants may subsequently re-designate the distribution of future contributions or transfer existing balances between investment funds on a daily basis, subject to the limits set forth in the Plan.

An "additional" Company contribution is contributed to the accounts of active participants, as of the last day of the Plan year, who contributed at least the maximum level of their compensation eligible to be matched by the Company and did not receive the maximum level of Company matching contributions based on their contributions during the Plan year. The amount of the "additional" Company contribution is the difference between the maximum level of Company matching contributions based on the participants contributions during the Plan year and the amount of Company matching contributions previously received by the participant during the Plan year.

Participants are immediately vested in their respective employee and employer contributions, except for the non-elective Company cash contribution which is subject to a three year cliff vesting schedule for new employees hired on Aug. 1, 2008 or later, or on a date agreed to pursuant to the terms of the participant's respective bargaining agreement. At Dec. 31, 2010 and 2009, forfeited nonvested accounts totaled \$136,809 and \$38,816, respectively. These accounts will be used to reduce future employer contributions. During the year ended Dec. 31, 2010, employer contributions were reduced by \$16,578 from forfeited nonvested accounts.

Contributions under the Plan are held and invested, until distribution, in a Trust Fund maintained by J.P. Morgan Retirement Plan Services LLC (the Trustee or JPMorgan). Individual accounts are maintained by the Trustee for each participant. Each participant's account is credited with the participant's contributions, Company contributions, and an allocation of Plan earnings, and charged with withdrawals and an allocation of Plan losses and administrative expenses. Allocations are based on participant earnings or account balances, as defined. The benefit to which a participant is entitled is the benefit that can be provided from the participant's vested account balance.

The Plan has provisions under which participants who are active employees may take loans up to the lesser of \$50,000 or 50% of their total account balance (a \$1,000 minimum loan amount and a maximum of three loans for each participant also apply). The Committee determines the loan interest rate pursuant to the Plan. Interest rates on participant loans outstanding ranged from 4.25% to 10.5% at Dec. 31, 2010 and 2009. Principal and interest are repaid bi-weekly through employee payroll deductions.

Note 2. Summary of Significant Accounting Policies

(a) Basis of Accounting - The financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America (GAAP).

(b) New Accounting Pronouncements - In September 2010, the Financial Accounting Standards Board (FASB) issued authoritative guidance which requires loans to participants by defined contribution pension plans to be classified as notes receivable from participants instead of plan investments. The guidance requires participant loans to be measured at their unpaid principal balance plus any accrued but unpaid interest. The guidance is effective for fiscal years ending after Dec. 15, 2010 and should be applied retrospectively to all prior periods presented. The Plan adopted this guidance as of Dec. 31, 2010 and made the required changes to its financial statements.

In January 2010, the FASB issued authoritative guidance which adds new fair value measurement disclosure requirements for Level 1 and 2 measurements, separate disclosures of purchases, sales, issuances and settlements relating to Level 3 measurements and clarification of existing fair value disclosures. The guidance is effective for periods beginning after Dec. 31, 2009, except for the requirement to provide Level 3 activity of purchases, sales, issuances and settlements on a gross basis, which will be effective for fiscal years beginning after Dec. 31, 2010. The Plan adopted the guidance effective for periods beginning after Dec. 31, 2009 on Jan. 1, 2010 with no impact to the financial statements of the Plan. The guidance effective for fiscal years beginning after Dec. 31, 2010 is not expected to have a material impact on the financial statements upon its adoption.

(c) Accounting for Fully Benefit-Responsive Contracts - In accordance with FASB authoritative guidance which defines reporting of fully benefit-responsive contracts held by defined-contribution pension plans, the statements of net assets available for benefits present investments at fair value as well as an additional line item showing an adjustment of fully benefit-responsive contracts from fair value to contract value.

(d) Valuation of Investments and Income Recognition - The Plan's investments are stated at fair value. All Guaranteed Investment Contracts (GICs) held by the Plan are fully benefit-responsive contracts and at Dec. 31, 2010 and 2009 all were synthetic GICs. The synthetic GICs are comprised of a portfolio of bonds and other fixed income securities owned by the Plan and an investment contract issued by an insurance company or other financial institution, designed to provide a contract value "wrapper" around the fixed income portfolio to guarantee a specific interest rate. The contract value of all GIC investments was \$68,767,397 and \$67,122,958 at Dec. 31, 2010 and 2009, respectively. The approximate fair value of these investments was \$67,853,854 and \$63,518,421 at Dec. 31, 2010 and 2009, respectively, based on the fair value of the underlying assets. The weighted average yields for the GICs based on annualized earnings on Dec. 31, 2010 and 2009 were 3.29% and 4.12%, respectively. The weighted average yields for the GICs based on the interest rate credited to participants on Dec. 31, 2010 and 2009 were 2.43% and 2.48%, respectively. All other Plan investments are carried at fair value as determined by quoted market prices or the net asset value of shares held by the Plan on the valuation date. Interest income is accrued when earned. Dividend income is recorded on the ex-dividend date. Investment transactions are recorded on the trade date.

(e) Net Appreciation in Fair Value of Investments - Net realized and unrealized appreciation is recorded in the accompanying statement of changes in net assets available for benefits as "Net appreciation in fair value of investments."

(f) Notes Receivable from Participants - Participant loans are carried at their unpaid principal balance, plus any accrued but unpaid interest.

(g) Payment of Benefits - Benefit payments to participants are recorded when paid.

(h) Expenses - All expenses paid through the Plan are recorded with investment earnings in the accompanying statement of changes in net assets available for benefits. Recordkeeping fees are reported separate from investment earnings on JPMorgan individual participant statements and are paid for directly by the Plan participants. Investment management fees are paid from investment earnings prior to crediting earnings to the individual participant account balances, but can be identified in the investment fund information supplied to participants from JPMorgan. Certain other Plan administrative expenses are absorbed by the Company. Expenses incurred in maintaining Self-Managed Brokerage Accounts are the responsibility of the respective Plan participants.

(i) Use of Estimates - The preparation of financial statements in conformity with GAAP requires the Plan administrator to make estimates and assumptions that affect the reported amounts of net assets available for benefits at the date of the financial statements and the reported amounts of changes in net assets available for benefits during the reporting period. Actual results could differ from those estimates.

(j) Risk and Uncertainties - The Plan invests in various investments, including registered investment companies, common/collective trusts, common stock of the Company and synthetic investment contracts. The Plan also offers a Self-Managed Brokerage Account option which allows participants to invest in a wide range of mutual funds. Investments, in general, are exposed to various risks, such as interest rate, credit, and overall market volatility. Due to the level of risk associated with certain investments, it is reasonably possible that changes in the values of certain investments may occur in the near term and that such changes could materially affect the amounts reported in the financial statements.

Note 3. Tax Status

The Internal Revenue Service (IRS) has determined and informed the Company by a letter dated Aug. 25, 2003, that the Plan and related trust are designed in accordance with the applicable sections of the Code. The Plan has been amended since receiving the determination letter and has applied for a new determination letter. The Committee and the Plan's tax counsel believe that the Plan is designed and is currently being operated in compliance with the applicable requirements of the Code.

GAAP requires Plan management to evaluate tax positions taken by the Plan and recognize a tax liability (or asset) if the Plan has taken an uncertain position that more likely than not would not be sustained upon examination by the IRS. The Committee has analyzed the tax positions taken by the Plan and has concluded that as of Dec. 31, 2010, there are no uncertain positions taken or expected to be taken that would require recognition of a liability (or asset) or disclosure in the financial statements. The Plan is subject to routine audits by the IRS; however, there are currently no audits for any tax periods in progress. The Committee believes it is no longer subject to income tax examinations for years prior to 2007.

Note 4. Plan Termination Provisions

Upon termination of the Plan in its entirety, each participant is entitled to receive, in accordance with the terms of the Plan, the entire balance in their account. The Company has no intention to terminate the Plan.

Note 5. Withdrawals and Distributions

Withdrawals from participants' account balances are allowed when participants who are actively employed reach age 70-1/2 (or age 59-1/2 for certain participants). Withdrawals are also allowed due to special "hardship" circumstances. Distributions from the Plan will be made upon termination of employment (by retirement, death, disability or otherwise) if the participant's account balance is less than \$5,000. If a withdrawing participant's account balance exceeds \$1,000 but is less than \$5,000, and the participant does not make an election to either have the account paid as a direct rollover or as a cash payment, the distribution will be paid as a direct rollover to an individual retirement account established at the Trustee. If a withdrawing participant's account balance exceeds \$5,000, the participant may elect to defer payment until he or she is age 70-1/2. Distributions can be either in the form of a lump sum, partial distribution or substantially equal annual installments. The unpaid portion of all loans made to the participant, including accrued interest, will be deducted from the amount of the participant account to be distributed. Distributions payable to participants at Dec. 31, 2010 and 2009 were \$0. Distributions payable are not included as a

liability within net assets available for benefits in the accompanying financial statements, however, they are recorded as liabilities in the Plan's Form 5500.

Note 6. Derivative Financial Instruments

The Plan did not invest in any material derivative financial instruments during 2010 and 2009.

Note 7. Investment Information

Investments held which were greater than 5% of the Plan's net assets available for benefits as of Dec. 31 were as follows:

	<u>2010</u>	<u>2009</u>
American Funds Growth Fund of America, 2,899,789 and 2,944,334 class R6 shares, respectively	\$88,269,588	\$80,468,640
State Street Global Advisors S&P 500 Index Securities Lending Series Fund, 3,636,970 and 3,447,604 class II shares, respectively	87,894,665	72,392,795
Alliant Energy Corporation Common Stock* (non-participant directed: \$20,490 (557 shares) and \$35,730 (1,181 shares), respectively) (participant directed: \$85,897,041 (2,336,063 shares) and \$78,809,516 (2,604,412 shares), respectively)	85,917,531	78,845,246
American Funds EuroPacific Growth Fund, 1,818,838 and 1,674,252 class R6 shares, respectively	75,245,315	64,190,817
JPMorgan Intermediate Bond Fund*, 4,788,174 and 4,798,341 shares, respectively	64,688,226	60,075,229
PIMCO Total Return Fund, 5,900,826 and 5,292,023 class I shares, respectively	64,023,960	57,153,844
Dodge & Cox Stock Fund, 490,524 and 478,394 shares, respectively	52,858,901	45,992,847
State Street Global Advisors U.S. Bond Index Securities Lending Series Fund, 2,668,918 and 2,150,990 class II shares, respectively	37,922,656	28,694,213
* Represents party known to be a party-in-interest to the Plan.		

During 2010, the Plan's investments, including gains and losses on investments acquired and disposed of, as well as held during the year, appreciated in value as follows:

Alliant Energy Corporation Common Stock*	\$16,134,974
State Street Global Advisors S&P 500 Index Securities Lending Series Fund	11,360,222
American Funds Growth Fund of America	8,825,391
Dodge & Cox Stock Fund	5,594,921
American Funds EuroPacific Growth Fund	5,460,592
Buffalo Small Cap Fund	3,942,833
Boston Company Emerging Markets Value Equity Fund	3,229,475
Columbia Multi-Advisor Small Cap Value Fund, (f/k/a Riversource Small Cap Value Fund)	2,688,852
Wellington Mid Cap Growth Fund	2,435,802
State Street Global Advisors U.S. Bond Index Securities Lending Series Fund	2,017,795
Perkins Mid Cap Value Fund	1,333,089
Self-Managed Brokerage Accounts	224,654
PIMCO Total Return Fund	73,403
Vanguard Inflation-Protected Securities Institutional Fund	26,754
Net appreciation in fair value of investments	<u>\$63,348,757</u>

* Represents party known to be a party-in-interest to the Plan.

Note 8. Fair Value Measurements

Valuation Hierarchy - Fair value measurement accounting establishes a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value. The three levels of the fair value hierarchy and a description of the Plan's assets for each are as follows:

Level 1 - Pricing inputs are unadjusted quoted prices available in active markets for identical assets or liabilities as of the reporting date. Level 1 Plan assets include investments in registered investment companies and common stocks and are valued at the closing price reported in the active market in which the individual securities are traded. Assets of participant-directed brokerage accounts at Dec. 31, 2010 and 2009 were limited to investments in registered investment companies.

Level 2 - Pricing inputs are quoted prices for similar asset or liabilities in active markets, quoted prices for identical or similar assets or liabilities in inactive markets, inputs other than quoted prices that are observable for the asset or liability and inputs that are derived principally from or corroborated by observable market data by correlation or other means. Level 2 Plan assets include investments in common/collective trusts and government and agency obligations. Common/collective trusts are valued at the net asset value (NAV) of shares held by the Plan which is based on the fair market value of the underlying investments of the common/collective trusts. The common/collective trusts underlying assets primarily consist of traded securities that have a variety of investment strategies including domestic and international equity and fixed income funds. Government and agency obligations are valued at the closing price reported in the active market in which the individual securities are traded or based on yields currently available on comparable securities of issuers with similar credit ratings.

Level 3 - Pricing inputs are unobservable inputs for assets or liabilities for which little or no market data exist and require significant management judgment or estimation. Level 3 Plan assets include synthetic guaranteed investment contract wrappers. Synthetic guaranteed investment contract wrappers are valued at fair value by discounting the related cash flows based on current yields of similar instruments with comparable durations considering the credit-worthiness of the issuer. The fair value of all synthetic guaranteed investment contract wrappers was \$0 at both Dec. 31, 2010 and 2009.

The fair value hierarchy gives the highest priority to unadjusted quoted prices in active markets (Level 1) and the lowest priority to unobservable data (Level 3). In some cases, the inputs used to measure fair value might fall in different levels of the fair value hierarchy. The lowest level input that is significant to a fair value measurement in its entirety determines the applicable level in the fair value hierarchy. Assessing the significance of a particular input to the fair value measurement in its entirety requires judgment, considering factors specific to the asset or liability.

The methods described above may produce a fair value calculation that may not be indicative of net realizable value or reflective of future fair values. Furthermore, while the Plan believes its valuation methods are appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine the fair value of certain financial instruments could result in a different fair value measurement at the reporting date.

Recurring Fair Value Measurements - The Plan's recurring items subject to fair value measurements disclosure requirements at Dec. 31, 2010 and 2009 were as follows:

	Fair Value Measurements	Level 1	Level 2	Level 3
Assets at Dec. 31, 2010:				
Registered investment companies:				
U.S. large cap value	\$52,858,901	\$52,858,901	\$--	\$--
U.S. large cap growth	88,269,588	88,269,588	--	--
U.S. mid cap value	11,514,777	11,514,777	--	--
U.S. small cap value	13,245,231	13,245,231	--	--
U.S. small cap growth	27,801,962	27,801,962	--	--
International - developed markets	75,245,315	75,245,315	--	--
Fixed income funds	64,798,110	64,798,110	--	--
Common/collective trusts:				
U.S. large cap core	87,894,665	--	87,894,665	--
U.S. mid cap growth	12,681,061	--	12,681,061	--
International - emerging markets	24,147,621	--	24,147,621	--
Fixed income funds	102,610,882	--	102,610,882	--
Liquidity funds	3,010,818	--	3,010,818	--
Common stocks	85,917,531	85,917,531	--	--
Government and agency obligations	1,644,010	--	1,644,010	--
Participant-directed brokerage accounts	2,191,938	2,191,938	--	--
Total assets at fair value	\$653,832,410	\$421,843,353	\$231,989,057	\$--
Assets at Dec. 31, 2009:				
Registered investment companies:				
U.S. large cap value	\$45,992,847	\$45,992,847	\$--	\$--
U.S. large cap growth	80,468,640	80,468,640	--	--
U.S. mid cap value	9,796,860	9,796,860	--	--
U.S. small cap value	10,138,261	10,138,261	--	--
U.S. small cap growth	25,143,157	25,143,157	--	--
International - developed markets	64,190,817	64,190,817	--	--
Fixed income funds	57,153,844	57,153,844	--	--
Common/collective trusts:				
U.S. large cap core	72,392,795	--	72,392,795	--
U.S. mid cap growth	9,142,062	--	9,142,062	--
International - emerging markets	22,189,216	--	22,189,216	--
Fixed income funds	88,769,442	--	88,769,442	--
Liquidity funds	4,283,346	--	4,283,346	--
Common stocks	78,845,246	78,845,246	--	--
Government and agency obligations	2,306,801	--	2,306,801	--
Participant-directed brokerage accounts	1,489,833	1,489,833	--	--
Total assets at fair value	\$572,303,167	\$373,219,505	\$199,083,662	\$--

Note 9. Non-Participant Directed Investments

Information about the net assets and the significant components of the changes in net assets relating to the non-participant directed investments was as follows:

	Dec. 31,	
Net assets:	2010	2009
Alliant Energy Corporation Common Stock*	<u>\$20,490</u>	<u>\$35,730</u>
Changes in net assets:	2010	
Employer contributions	<u>\$13,811</u>	
Investment activity:		
Net appreciation in fair value of investments	957	
Dividend income	1,286	
Transfers to participant directed investments (Note 1)	(30,680)	
Distributions to participants	<u>(614)</u>	
	<u>(\$15,240)</u>	

* Represents party known to be a party-in-interest to the Plan.

Note 10. Related Party Transactions

Certain Plan investments are shares of common trust funds managed by an affiliate of the Trustee and shares of common stock of the Company. As of Dec. 31, 2010 and 2009, the Plan held 2,336,620 and 2,605,593 shares of Alliant Energy Corporation common stock with a cost basis of \$67,748,016 and \$73,850,129 respectively. In 2010 and 2009, the Plan recorded dividend income of \$3,892,036 and \$4,217,608 respectively, from investments in common stock of the Company. These transactions qualify as exempt party-in-interest transactions.

Note 11. Reconciliation to Form 5500

Net assets available for benefits in the accompanying financial statements reports fully benefit-responsive investment contracts at contract value, however, they are recorded at fair value in the Plan's Form 5500. If applicable, distributions payable to participants are not included as a liability within net assets available for benefits in the accompanying financial statements, however, they are recorded as liabilities in the Plan's Form 5500. The following table reconciles net assets available for benefits per the financial statements to the Plan's Form 5500 as filed by the Company:

	<u>2010</u>	<u>2009</u>
Net assets available for benefits per financial statements	<u>\$665,561,269</u>	<u>\$585,491,424</u>
Adjustments:		
Fair value to contract value for fully benefit-responsive investment contracts	(913,543)	(3,604,537)
Deemed distributions of participant loans	<u>(31,218)</u>	<u>(4,378)</u>
Amounts reported per Form 5500	<u>\$664,616,508</u>	<u>\$581,882,509</u>

The following table reconciles the net increase in net assets available for benefits per the financial statements to the Form 5500 as filed by the Company for 2010:

	<u>Net increase</u>
Amounts reported per financial statements	<u>\$80,069,845</u>
Adjustments:	
Changes in adjustment from fair value to contract value for fully benefit-responsive investment contracts	2,690,994
Deemed distributions of participant loans during 2010	<u>(26,840)</u>
Amounts reported per Form 5500	<u>\$82,733,999</u>

Note 12. Subsequent Events

The Plan was amended to allow for automatic enrollment. Effective for nonbargaining employees hired on or after Jan. 1, 2011, an automatic 3% pre-tax contribution rate will apply unless the employee makes a contrary election within 30 days of their hire date. Effective Jan. 1, 2011, the Plan was also amended to allow active employees who are at least age 59 ½ to elect to withdraw all or any portion of their account balance and to allow beneficiaries of deceased employees to remain in the Plan.

Effective July 1, 2011, the IES Employee Stock Ownership Plan and its related trust are expected to merge with and into the ESOP within the Plan.

ALLIANT ENERGY CORPORATION

401(k) SAVINGS PLAN

FORM 5500, SCHEDULE H, PART IV, LINE 4i - SCHEDULE OF ASSETS (HELD AT END OF YEAR)

AS OF DECEMBER 31, 2010

Identity of issue, borrower, lessor, or similar party	Description of investment including maturity date, rate of interest, collateral, par or maturity value	Cost*	Current Value
Registered Investment Companies	American Funds Growth Fund of America, 2,899,789 class R6 shares		\$88,269,588
	American Funds EuroPacific Growth Fund, 1,818,838 class R6 shares		75,245,315
	PIMCO Total Return Fund, 5,900,826 class I shares		64,023,960
	Dodge & Cox Stock Fund, 490,524 shares		52,858,901
	Buffalo Small Cap Fund, 1,060,739 shares		27,801,962
	Columbia Multi-Advisor Small Cap Value Fund, 2,222,354 class R5 shares (f/k/a Riversource Small Cap Value Fund, class R5 shares)		13,245,231
	Perkins Mid Cap Value Fund, 510,181 class I shares		11,514,777
	Vanguard Inflation-Protected Securities Institutional Fund, 31,406 shares		774,150
Common/Collective Trusts	State Street Global Advisors S&P 500 Index Securities Lending Series Fund, 3,636,970 class II shares		87,894,665
	JPMorgan Intermediate Bond Fund**, 4,788,174 shares		64,688,226
	State Street Global Advisors U.S. Bond Index Securities Lending Series Fund, 2,668,918 class II shares		37,922,656
	Boston Company Emerging Markets Value Equity Fund, 370,479 shares		24,147,621
	Wellington Mid Cap Growth Fund, 995,374 shares		12,681,061
	JPMorgan Liquidity Fund**, 3,010,818 shares		3,010,818
Corporate Stocks: Common	Alliant Energy Corporation common stock**, 2,336,620 shares	\$67,748,016	85,917,531
Government and Agency Obligations	US TREASURY NOTE 4.750%, 08/15/17, par value \$610,000		691,730
	FNMA 10 YR FN 387608 Mtg Back 4.80%, 9/1/15, par value \$201,927		217,991
	FHLMC 30 YR FH 1G2450 Mtg Back FRN 8/1/36, par value \$126,588		133,309
	FNMA 30 YR FN 826908 Mtg Back FRN, 8/1/35, par value \$86,753		92,633
	FNMA 30 YR FN 725090 Mtg Back FRN, 11/1/33, par value \$57,229		60,414
	FNMA 30 YR FN 887096 Mtg Back FRN, 7/1/36, par value \$55,525		59,300
	FNMA 30 YR FN 705304 Mtg Back FRN, 6/1/33, par value \$53,014		56,158
	FNMA 30 YR FN 844705 Mtg Back FRN, 12/1/35, par value \$46,729		50,156
	FNMA 30 YR FN 799769 Mtg Back FRN, 11/1/34, par value \$40,730		42,781
	FNMA 30 YR FN 866097 Mtg Back FRN, 2/1/36, par value \$37,391		40,059
	FNMA 30 YR FN 902818 Mtg Back FRN, 11/1/36, par value \$36,425		38,633
	FNMA 30 YR FN 764082 Mtg Back FRN, 1/1/34, par value \$36,197		37,502
	FNMA 30 YR FN 809534 Mtg Back FRN, 2/1/35, par value \$33,032		34,917
	FNMA 30 YR FN 801344 Mtg Back FRN, 10/1/34, par value \$32,522		34,050
	FNMA 30 YR FN 849082 Mtg Back FRN, 1/1/36, par value \$25,621		27,359
	FNMA 30 YR FN 872753 Mtg Back FRN, 6/1/36, par value \$25,287		27,018
Investment Contracts	State Street Bank, 2.45% Synthetic Guaranteed Investment Contract Wrapper		--
	Aegon, 2.45% Synthetic Guaranteed Investment Contract Wrapper		--
	ING, 2.45% Synthetic Guaranteed Investment Contract Wrapper		--
Participant-Directed Brokerage Accounts	Self-Managed Brokerage Accounts		2,191,938
Participant Promissory Notes**	Maximum allowable loan per participant -- \$50,000 Various interest rates -- 4.25% to 10.50% Primarily maturing within 5 years		10,815,316
			<u>\$664,647,726</u>

* Cost value is not required to be disclosed for participant-directed investments.

** Represents party known to be a party-in-interest to the Alliant Energy Corporation 401(k) Savings Plan.

ALLIANT ENERGY CORPORATION

401(k) SAVINGS PLAN

FORM 5500, SCHEDULE H, PART IV, LINE 4i - SCHEDULE OF ASSETS (ACQUIRED AND DISPOSED OF WITHIN YEAR)

FOR THE YEAR ENDED DECEMBER 31, 2010

Identity of issue, borrower, lessor, or similar party	Description of investment including maturity date, rate of interest, collateral, par or maturity value	Cost of Acquisitions	Proceeds of Dispositions
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None.

ALLIANT ENERGY CORPORATION

401(k) SAVINGS PLAN

FORM 5500, SCHEDULE H, PART IV

LINE 4j - SCHEDULE OF REPORTABLE TRANSACTIONS

FOR THE YEAR ENDED DECEMBER 31, 2010

<u>Identity of Party Involved and Description of Assets</u>	<u>Total Number of Purchases</u>	<u>Total Value of Purchases</u>	<u>Total Number of Sales</u>	<u>Net Selling Price</u>	<u>Adjusted Cost of Assets Sold</u>	<u>Net Gain (Loss)</u>
Single Transaction Exceeds 5% of Value:						
None.						
Series of Transactions With Same Broker Exceeds 5% of Value:						
None.						
Series of Transactions In Same Security Exceeds 5% of Value:						
None.						
Single Transaction With One Broker Exceeds 5% of Value:						
None.						

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the Total Compensation Committee, which administers the Plan, has duly caused this Annual Report to be signed on its behalf by the undersigned, thereunto duly authorized, on this 22nd day of June 2011.

ALLIANT ENERGY CORPORATION 401(k) SAVINGS PLAN

/s/ Wayne A. Reschke
Wayne A. Reschke

The foregoing person is the Vice President - Human Resources of Alliant Energy Corporation and Alliant Energy Corporate Services, Inc., and the Chairperson of the Alliant Energy Corporation Total Compensation Committee.

EXHIBIT INDEX TO ANNUAL REPORT ON FORM 11-K

**ALLIANT ENERGY CORPORATION
401(k) SAVINGS PLAN**

FOR THE YEAR ENDED DECEMBER 31, 2010

<u>Exhibit No.</u>	<u>Exhibit</u>	Page Number in Sequentially Numbered <u>Form 11-K</u>
23	Consent of Independent Registered Public Accounting Firm	21

Exhibit 23

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in Registration Statement No. 333-117654 of Alliant Energy Corporation on Form S-8 of our report dated June 22, 2011, appearing in this Annual Report on Form 11-K of Alliant Energy Corporation 401(k) Savings Plan for the year ended December 31, 2010.

/s/ Deloitte & Touche LLP

Milwaukee, WI
June 22, 2011